REMARKS

The Office Action mailed April 13, 2006 has been carefully considered.

Reconsideration is respectfully requested in view of the amendments made to the claims and for the remarks made herein.

Claims 1-24 are pending and stand rejected.

Claims 3, 7, 10, 12, 16, 21, and 24 have been amended.

Claims 1-4, 7-8, 10-13, 16-17, 19-22 and 24 stand provisionally rejected under the Judicially created doctrine of double patenting over claims 1-2, 4, 8-9 and 15 of co-pending Application no. 10/679,726.

Applicant, through his attorney, thanks the Examiner for his observation regarding the claims in the two applications, but respectfully disagrees with the reason for rejecting the claims. However, in the interest of advancing the prosecution of this matter, applicant submits herewith a Terminal Disclaimer limiting the term of the patent that may issue based on the instant application to that date as expressed in the accompanying Terminal Disclaimer document.

Having filed a Terminal Disclaimer in this matter, applicant believes that the reason for the rejection has been overcome and respectfully requests that the Terminal Disclaimer be entered and the rejection be withdrawn.

Claims 3, 7, 12, 16 and 21 stand rejected under 35 USC 112, second paragraph as being indefinite.

Applicant thanks the Examiner for providing further explanation of the reason for the rejection on page 16 of the instant Office Action and has amended the claim language to more clearly state the invention. More specifically, the language has been amended to recite tracking "extents of the clone that are different from those of ~~the clone and~~ the source." No new matter has been added. Support for the amendment may be found on at least page 145, lines 1-3, which state "[t]he Sync Engine uses the Delta Map 28 stored in memory 36 to preferably copy only the extents that are different between the Clone and its Source, and a Protected Restore Map 32 and also a Tracking Map 35 are used as described herein."

For at least these reasons applicant submits that the reason for the rejection has been overcome and respectfully requests that the rejection be withdrawn.

Claims 1-24 stand rejected under 35 USC 102(e) as being anticipated by Young (USP no. 6,898,681), which is the same reason recited in the prior Office Action. This Office Action provides further rationale for the rejection of the claims in reply to the applicant's arguments made in response to the prior Office Action. The instant Office Action states that with regard to applicant's argument that "Young does not teach the limitation: 'if any extents affected are involved in the restoring step, then setting an indicator to indicate that the extents need to be re-copied.' Young discloses '... When overwritten, these data blocks in the master store 6 of course no longer represent the point in time copy required by the user. Accordingly, before the data processor 23 is permitted to overwrite a data block in the master store 6, the controller 20 advises the point in time copy controller 4 that the data block is about to be overwritten.' ... *Young teaches before a data block (e.g., extent) is overwritten, a point-in-time copy of that block is copied to shadow store and the corresponding bit in the bitmap is set to 1(e.g., the indicator for the extents affected are being set.* (emphasis in original). 'Recovery of a master copy from a point in time copy in the dependent mode will not be described with reference to FIGs. 5a to 5e

…' *During recovery … the shadow bitmap is copied to the copy bitmap and the blocks or extents which have their corresponding bit in copy bitmap set are the extents or blocks that have been affected and are copied back to master store.*' (emphasis in original). " (see page 16, line 6-page 17, line 23).

Applicant again respectfully disagrees with the reason for rejecting the claims for the same reasons as recited in the response to the prior Office Action.

In view of the additional rationale provide by the Examiner, a review of the referred to figures, which are included herein for reference, shows that Young fails to provide an indication of those blocks which are required to be re-written after a write request as is recited in the claims.

More specifically, Young states that "[w]hen a user instructs recovery of a master copy … [claim 1 element: restore step], then at S20 of FIG. 5a, the point in time copy controller 4 copies the shadow bitmap to the copy bitmap so that every bit in the copy bitmap has the same state as the corresponding bit in the shadow bit map as shown in FIG. 5b." (see col. 6, line 66-col. 7, lines 5).

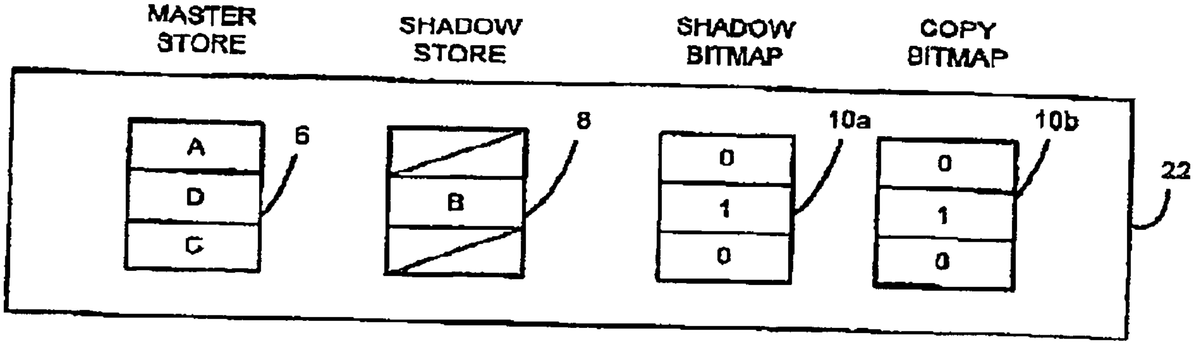

Fig. 5b

"At S21 in FIG. 5a, the point in time copy controller 4 clears the shadow bitmap by resetting all the bits to zero as shown in FIG. 5c." (see col. 7, lines 9-11).

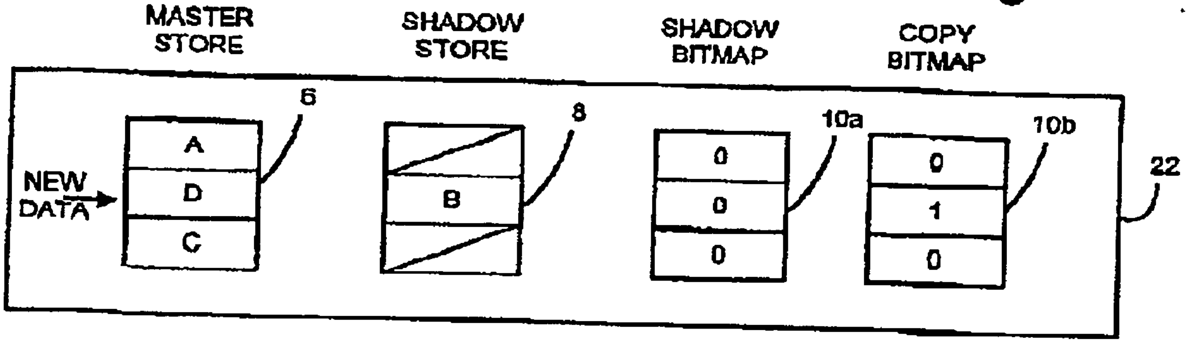

Fig. 5c

"Then at S22 in FIG. 5a, the point in time copy controller 4 checks to see whether the data process 23 wishes to write new data to a data block in the master store 6 [claim 1 element: receiving a write request]. If, as shown in FIG 5c by the arrow and the legend 'NEW DATA,' the answer is yes [claim 1 element: determining extents on the source that would be affected by the write request], then the point in time copy controller 4 copies that data block from the shadow store 8 to the master store 6 at S23 and at S24 sets the corresponding copy bit to zero as shown in FIG. 5d." (see col. 7, lines 11-18).

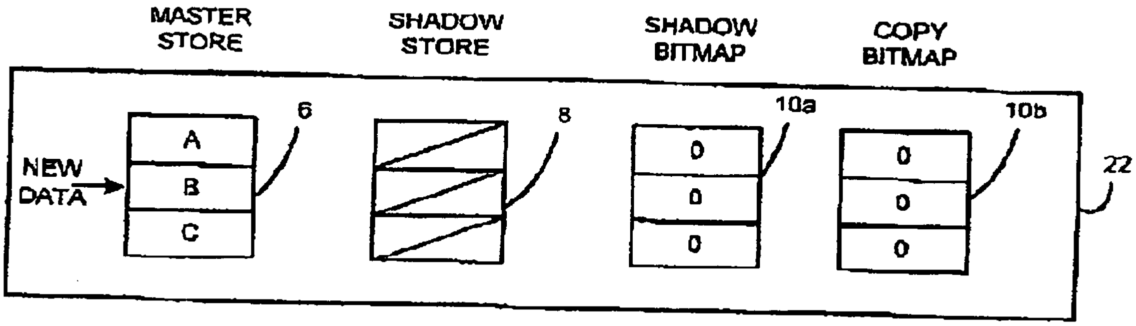

Fig. 5d

"Then, at S25, the point in time copy controller 4 allows the new data 'NEW" to be written into that data block to the master store as shown in FIG. 5e." (see col. 7, lines 18-20).

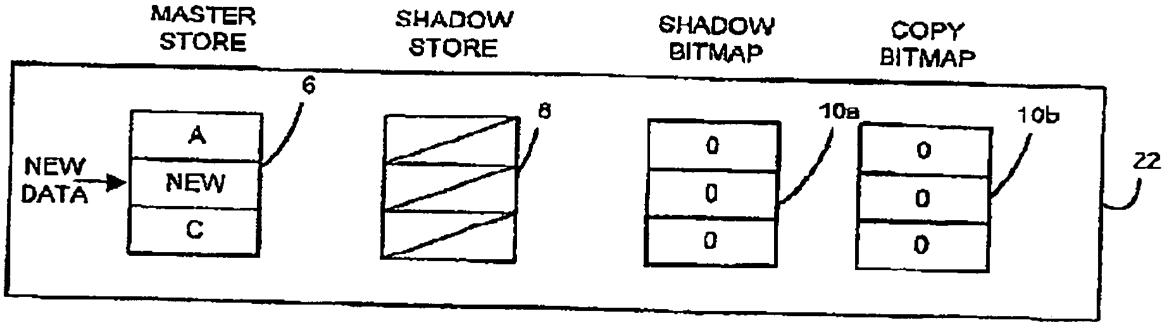

Fig. 5e

Hence, in this aspect of Young, the stored shadow data is returned to the master store and then overwritten by the new data. Thus, an indicator is not set to indicate that data that is to be re-copied.

Young further discloses that "[i]f .... the answer at S22 is no [i.e., if no "NEW DATA" is to be written into a data block], the at S27 the point in time copy controller selects the data block associated with a first or a next copy bit of status land [sic] copies that data block from the shadow store to the master store. Then at S28 in FIG. 5a, the point in time copy controller sets the corresponding copy bit to zero." (see col. 7, lines 24-29). Young further discloses that its process is continued while all the copy bits having a status of 1 is repeated until all the copy bits are zero (see copy 7, lines 30-38).

Accordingly, during the restore process, Young fails to "set[ting] an indicator to indicate that the extents [affected by the write request] need to be re-copied," as is recited in the claims. Rather, Young teaches setting an indicator to indicate which blocks have to be restored and if a write request effects one of the blocks that have to be restored, holding the execution of the write request until after the restoration has occurred and then executing the write request.

It is well recognized that to constitute a rejection pursuant to 35 USC §102, i.e., anticipation, all material elements recited in a claim must be found in one unit of prior art.

Young cannot be said to anticipate the present invention, because Young fails to disclose each and every element recited.

At least for this reason, applicant submits that the rejection of claim 1 has been overcome and can no longer be sustained. Applicant respectfully requests withdrawal of the rejection and allowance of the claim.

The remaining independent claims recite subject matter similar to that recited in claim 1 and were rejected for the same reason used in rejecting claim 1. Thus, for the remarks made in response to the rejection of claim 1, which are also applicable in response to the rejection of the remaining independent claims, and reasserted, as if in full, herein, it is submitted that the reason for rejecting these claims has been overcome and the rejection can no longer be sustained. It is respectfully requested that the rejection be withdrawn and the claims allowed.

The remaining claims ultimately depend from the independent claims, which have been shown to contain subject matter not disclosed by, and, hence, allowable over, the reference cited. Accordingly, these claims are also allowable by virtue of their dependency from an allowable base claim.

In view of the foregoing, the applicants' believe that the reasons for the rejection have been overcome, the application is in condition for allowance and respectfully request favorable reconsideration.

In the event the Examiner deems personal contact desirable in the disposition of this case, the Examiner is invited to call the undersigned attorney at 914 798 8505.

Please charge all fees occasioned by this submission to Deposit Account No. 05-0889.

Respectfully submitted,

Dated: 6/13/06

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